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IS 9828 (2001): Portable Pneumatic Sanders [PGD 8:
Pneumatic Tools]



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“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

सुवाह्य वायुचालित सेंडर्स — विशिष्टि
(पहला पुनरीक्षण)

Indian Standard

PORTABLE PNEUMATIC SANDERS —
SPECIFICATION

(*First Revision*)

ICS 25.080.50

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Pneumatic Tools Sectional Committee had been approved by the Basic and Production Engineering Division Council.

This standard was originally published in 1981. This revision has been taken up to align it with the latest development in the technology.

This revision includes the following changes:

- a) Pad material and pad assembly balancing requirements; and
- b) Packing and packaging requirements.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off values should be the same as that of the specified value in this standard.

Indian Standard

PORTABLE PNEUMATIC SANDERS — SPECIFICATION

(First Revision)

1 SCOPE

This standard covers the requirements for portable pneumatic sanders having nominal diameter of pads/abrasive coated discs upto 230 mm.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	Title
196 : 1966	Atmospheric conditions for testing(<i>revised</i>)
715	Coated abrasives
(Part 1) : 1976	General application (<i>third revision</i>)
(Part 2) : 1976	Special and mechanical applications (<i>third revision</i>)

3 TERMINOLOGY

3.1 Free Air Consumption — The volume of air corrected to standard atmospheric conditions of temperature and pressure according to IS 196 consumed by the sander, complete with felt pad/abrasive coated disc without any fluctuation of pressure during the test.

3.2 Gauge Pressure — The steady pressure reading of compressed air on the gauge which shall be located within three metre from the inlet to the sander.

3.3 Sander — The machine designed to carry felt pad or rubber pad and abrasive coated disc for fine grinding and sanding by abrasive action.

3.4 Portable Sander — The sander which is designed to be held in the operator's hands during its normal working.

3.4.1 Vertical Sander — The sander with disc spindle which is co-axial to the motor.

3.4.2 Angle Sander — The sander with disc spindle which is at right angle to the motor.

4 TYPES

Type A — Vertical sander (*see 3.4.1*).

Type B — Angle sander (*see 3.4.2*).

5 DIMENSIONS

5.1 Disc Mounting Dimensions

The disc mounting dimensions shall be as given in Table 1 when read with Fig. 1.

5.2 Disc Guard Dimensions

The disc guard dimensions shall be as given in Fig. 2.

6 GENERAL REQUIREMENTS

6.1 Sander Discs

It is recommended to use glue bond coated abrasive discs with these machines as standard equipment. For various types, sizes and grades [*see IS 715(Part 1) and IS 715(Part 2)*].

6.1.1 The pad shall be made of high nitrile rubber with canvas layer outside and pad assembly to be balanced within 1 g at 6 000 rev/min.

6.2 Disc Speed

The disc speed shall not exceed 3 500 m/min.

6.3 Air Control

The flow of air to the machine shall be controlled by an 'ON/OFF' valve. The valve mechanism shall be so designed that it shall prevent any accidental starting of the machine. The position of the valve shall be such as to allow the operator to actuate it with ease with one hand during normal working.

6.4 Speed Control

All sanders shall be provided with the automatic governors for limiting the speed within the maximum safe limit.

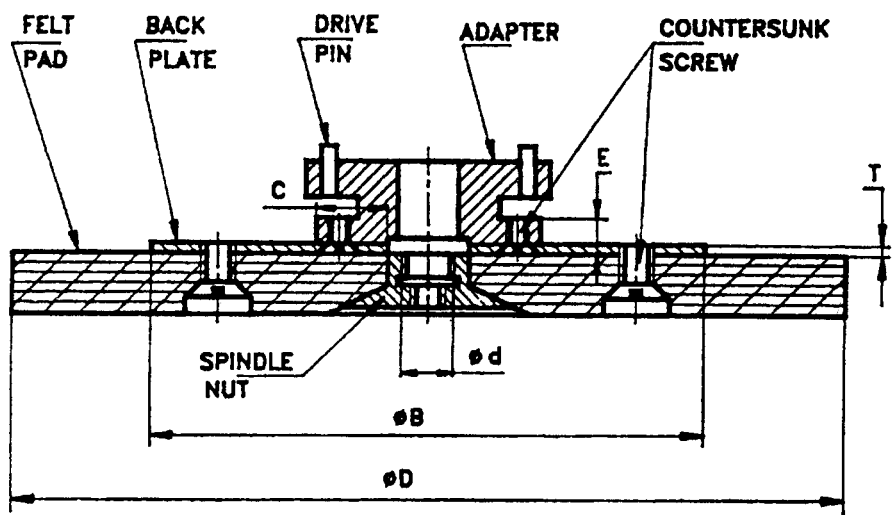


FIG. 1 DISC MOUNTING ASSEMBLY

Table 1 Wheel Mounting Dimensions
(Clause 5.1)

All dimensions in millimeters.

Nominal Size (1)	D (2)	d H8/h8 (3)	Thread Size (4)	B Min (5)	C (6)	E Min (7)	T Min (8)
100	100	13 16	M 12 M 16	25	10	2.5	1.5
125	125	13 16	M 12 M 16	50	12	2.5	1.5
150	150	13 16	M 12 M 16 M 20	75	16	3.0	1.75
180	180	16	M 16	100	20	3.0	1.75
200	200	13 16	M 12 M 16	125	20	3.0	2.25

6.5 Spindle

The spindle or its mounting shall be designed to enable the tachometer to be held against it to measure the speed of the spindle.

6.6 Disc Guard

A guard shall be used on every sander. The guard shall be so mounted as to maintain proper alignment with wheels. The fastenings of the guard to the machine shall have ample strength.

6.6.1 Exposure

The sander disc shall have an angular exposure as per Fig. 2 with an angular tolerance of 1° and shall be

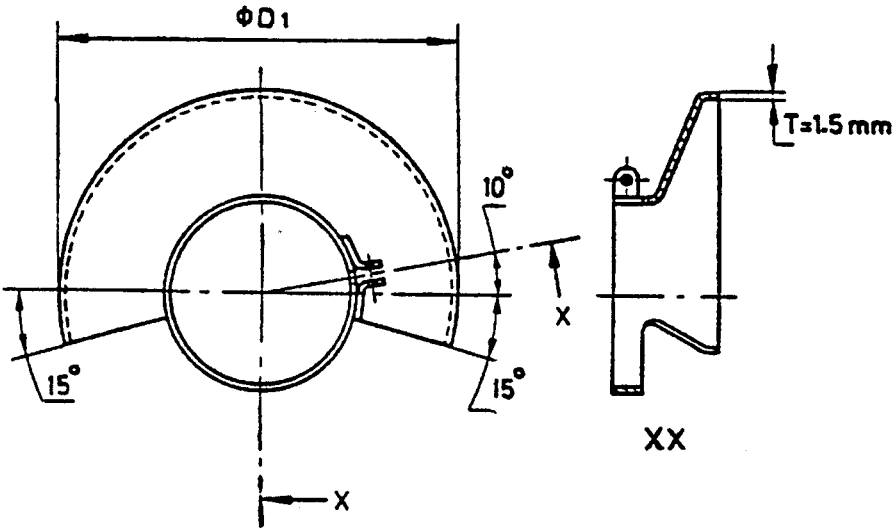


FIG. 2 DISC GUARD

located so as to be between the operator and the disc during use.

6.7 Manual

Each sander shall be supplied with operation and maintenance manual along with parts identification.

7 TESTS

7.1 Type Tests

The tests given at 7.3, 7.4.1, 7.5 and 7.6 shall constitute type tests.

7.2 Routine Tests

The tests given at 7.3, 7.4.2 and 7.5 shall constitute routine tests.

7.3 Operational Test

The tools shall be tested for operation for five minutes during which the throttle shall be operated for at least 10 times ('ON/OFF' cycles).

7.4 Endurance Tests

7.4.1 For Type Approval

Each sample shall be put to field use for 100 hours of actual work. After field use the tool shall be dismantled and all parts examined. No part shall either break during field use or be found broken, cracked, deformed or show sign of excessive wear on examination.

7.4.1.1 After the successful completion of this test the tool shall be subjected to air consumption and load tests as per 7.5 and 7.6. The results obtained shall conform to the values specified in Table 2.

7.4.2 For Routine Testing

One percent, the minimum being one of the tools on order if the order is for 50 pieces or more, shall be put to use for 15 hours of actual work. After use the tool shall be dismantled and all parts shall be examined. No part shall either break during use or be found broken, cracked, deformed or shown signs of excessive wear, or examination.

7.4.3 The test as per 7.4.1 shall be carried out by manufacturer before a new product is marketed or any changes are made in design materials in the existing product. A type approval certificate shall be supplied by the manufacturer to the purchaser if asked for.

7.5 Air Consumption Test

The variable area flow meter of any other equally suitable instrument shall be used to determine the quantity of air consumed per minute at a pressure of 6 ± 0.5 bar, measured at a distance of not more than three metre from the tool. The air consumption corrected to standard atmospheric conditions of testing according to IS 196 shall not exceed the values given in col 3 of Table 2.

7.5.1 During this test the speed of the sanders shall also be measured. The speed shall conform to col 2 of Table 2.

Table 2 Performance Characteristics

Nominal Size mm	Free rev/min Max	Air Consumption While Delivering Maximum Power in m ³ /min Max	Power Delivered (kW)Max	Air Inlet Size
(1)	(2)	(3)	(4)	(5)
100	11 140	1.40	0.97	Rc 1/2
125	8 910	1.70	1.27	Rc 1/2
150	7 420	1.80	0.75	Rc 1/2
180	6 180	1.93	2.16	Rc 1/2
200	5 570	1.93	1.94	Rc 1/2
230	4 840	1.93	1.79	Rc 1/2

NOTE — The maximum free rev/min specified has been calculated on the basis of an allowable peripheral speed of 3 500 m/min.

7.6 Load Test

The load test shall be carried out by coupling the grinder spindle to pony brake or to a suitable attachment to cause resistance. The quantity of air consumed per minute during load test at a pressure of 6 ± 0.5 bar, measured at a distance of three metres from the sander shall not exceed the values given in col 3 of Table 2. The fluctuation of air pressure during load test shall be ± 2.0 percent of test pressure.

8 DESIGNATION

A portable pneumatic sander of Type A, having nominal size 100 mm and conforming to this standard shall be designated as:

Pneumatic Sander A 100 IS 9828

9 MARKING

9.1 The sanders shall be marked with the following details at a suitable place:

- Manufacturers name or trade mark,
- Maximum working air pressure,
- Maximum speed,
- Year of manufacturing, and
- The nominal size and serial number of the machine.

9.2 BIS Certification Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

10 PACKING AND PACKAGING

Before packing, the inlet exhaust and other openings of each sander shall be adequately protected/covered against entry of dust and other harmful material. Each sander shall be packed in such a way that no damage is done during transit.

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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